## What is claimed is:

[Claim 1]    1. A system for setting and adjusting a frequency of electrical output pulses derived from an oscillator in a network comprising:

an accumulator module configured to receive pulses from an oscillator and to output an accumulated value;
an adjustor module configured to store an adjustor value;
a digital adder configured to add values from the accumulator module and the adjustor module, to output their sums to the accumulator module, and to output electrical pulses corresponding to carry values; and
a logic module configured to receive electrical pulses corresponding to carry values from the adder and modify the adjustor value stored in the adjustor module.

[Claim 2]    2. The system of claim 1, wherein the logic module is operably connected to the network.

[Claim 3]    3. The system of claim 2, wherein the network is a downhole network integrated into a tool string.

[Claim 4]    4. The system of claim 1, further comprising a source of global time connected to the network.

[Claim 5]    5. The system of claim 4 wherein the source of global time is selected from the group consisting of network servers, GPS devices, downhole nodes in the network, and wireless transmitters.

[Claim 6]    6. The system of claim 1, wherein the accumulator module is further configured to output its accumulated value to the digital adder for every pulse it detects from the oscillator.

[Claim 7]    7. The system of claim 1, wherein the sum stored by the digital adder in the accumulator module becomes the accumulated value that is output by the accumulator module.

[Claim 8]    8. The system of claim 1, wherein the oscillator is selected from the group consisting of at least one crystal, at least one transistor, at least one RC circuit, at least one LC circuit, and at least one LRC circuit.

[Claim 9]    9. The system of claim 1, wherein the adjustor module initially stores a value given by a predetermined output pulse frequency divided by the pulse frequency of the oscillator.

[Claim 10]   10.    The system of claim 1, wherein the digital adder is configured to store a new sum in the accumulator module for each value it receives from the accumulator module.

[Claim 11]   11.    The system of claim 1, wherein the system functions as a baud rate generator for the network.

[Claim 12]   12.    The system of claim 1, wherein the system functions as a clock.

[Claim 13]   13.    The system of claim 1, wherein the logic module is configured to determine a time of day value based on electrical output pulses it receives from the digital adder.

[Claim 14]   14.      The system of claim 1, wherein the logic module is further configured to compare a local time of day value to a global time of day value and calculate local clock oscillator drift.


[Claim 15]   15.      The system of claim 14, wherein the logic module is further configured to synchronize local time to global time.


[Claim 16]   16.      A method for producing electrical output pulses at a selected frequency comprising:

determining an adjustor value from the selected frequency;
receiving electrical pulses from an oscillator;
digitally adding an accumulated value to the adjustor value; and
outputting electrical pulses corresponding to carry values.


[Claim 17]   17.      The method of claim 16, wherein the step of digitally adding an accumulated value to an adjustor value occurs for each electrical pulse received from the oscillator.


[Claim 18]   18.      The method of claim 16, wherein the step of digitally adding an accumulated value to an adjustor value further comprises storing the sum in an accumulator module.


[Claim 19]   19.      The method of claim 18, wherein the sum stored in the accumulator module becomes the next accumulated value added to the adjustor value.

[Claim 20]  20.    The method of claim 16, wherein the adjustor value is initially determined by dividing the selected output frequency by a pulse frequency of the oscillator.

[Claim 21]  21.    The method of claim 20, wherein the predetermined frequency of output pulses is a multiple of a desired baud rate for data transmission or reception in a network.

[Claim 22]  22.    The method of claim 21, wherein the predetermined frequency of output pulses is 16 times the desired baud rate for data transmission or reception in a network.

[Claim 23]  23.    A method for correcting drift in pulses derived from an oscillator in a network comprising:

determining an adjustor value from a selected output frequency;
receiving electrical pulses from an oscillator;
digitally adding an accumulated value to an adjustor value;
outputting electrical pulses corresponding to carry values;
keeping time based on the electrical output pulses; and
modifying the adjustor value to adjust the frequency of electrical output pulses.

[Claim 24]  24.    The method of claim 23, wherein the step of digitally adding an accumulated value to an adjustor value occurs for each electrical pulse received from the oscillator.

[Claim 25]  25.    The method of claim 23, wherein the step of digitally adding an accumulated value to an adjustor value further comprises storing the sum in an accumulator module.

[Claim 26] 26.     The method of claim 25, wherein the sum stored in the accumulator module becomes the next accumulated value added to the adjustor value.


[Claim 27] 27.     The method of claim 23, wherein the adjustor value is initially determined by dividing the selected output frequency by a pulse frequency of the oscillator.


[Claim 28] 28.     The method of claim 23, wherein the method further comprises the step of comparing local time to global time received over the network to calculate oscillator drift.


[Claim 29] 29.     The method of claim 28, wherein the steps of receiving electrical pulses from an oscillator, digitally adding an accumulated value to an adjustor value, outputting electrical pulses corresponding to carry values, and keeping time based on the output pulses are repeated at least once before calculating local oscillator drift.


[Claim 30] 30.     The method of claim 28, wherein the global time data are adjusted for transmission latency over the network from the source of global time.


[Claim 31] 31.     The method of claim 28, wherein local time is compared to global time after having synchronized the local clock to the source of global time.


[Claim 32] 32.     The method of claim 28, wherein the modified adjustor value and frequency of its modification are determined from the calculated drift.